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1. A method of decreasing the formation of new heterotopic ossification lesions in a human subject with FOP, the method comprising administering to the human subject a therapeutically effective amount of an Activin A antagonist, thereby decreasing the formation of new heterotopic ossification lesions in the human subject.

2. The method of claim **1**, wherein the formation of new heterotopic ossification lesions is prevented in the human subject.

3. A method of preventing formation of new heterotopic ossification lesions in a human subject with FOP, the method comprising administering to the human subject a therapeutically effective amount of an Activin A antagonist, thereby preventing the formation of new heterotopic ossification lesions in the human subject.

4. The method of claim **1**, wherein the human subject exhibits a decrease in number of new heterotopic ossification lesions of at least 5%, at least 10%, at least 20%, at least about 25%, at least 30%, at least 40%, at least 50%, at least 60%, at least 70%, at least 80%, at least 90%, at least 5%-90%, at least 10%-90%, at least 20%-90%, at least 30%-90%, at least 40%-90%, at least 50%-90%, at least 60%-90%, at least 70%-90%, at least 80%-90%, at least 5%-80%, at least 5%-70%, at least 5%-60%, at least 5%-50%, at least 5%-40%, at least 5%-30%, at least 5%-20%, or at least 5%-10%, relative to a control.

5. The method of claim **1**, wherein the human subject exhibits a decrease in new heterotopic ossification lesion volume by at least 5%, at least 10%, at least 15%, at least 20%, at least 25%, at least 30%, at least 40%, at least 50%, at least 5%-50%, at least 10%-50%, at least 20%-50%, at least 30%-50%, at least 40%-50%, at least 5%-40%, at least 5%-30%, at least 5%-20%, or at least 5%-10%, relative to a control.

6. The method of claim **1**, wherein the human subject exhibits a decrease in a rate of new heterotopic ossification lesion growth and mineralization of at least 5%, at least 10%, at least 20%, at least 30%, at least 40%, at least 50%, at least 5%-50%, at least 10%-50%, at least 20%-50%, at least 30%-50%, at least 40%-50%, at least 5%-40%, at least 5%-30%, at least 5%-20%, or at least 5%-10%, relative to a control.

7. The method of claim **1**, wherein the human subject exhibits a decrease in new heterotopic ossification lesion intensity of at least 5%, at least 10%, at least 20%, at least 30%, at least 40%, at least 50% at least 5%-50%, at least 10%-50%, at least 20%-50%, at least 30%-50%, at least 40%-50%, at least 5%-40%, at least 5%-30%, at least 5%-20%, or at least 5%-10%, relative to a control.

8. The method of claim **1**, wherein the human subject exhibits a decrease in total lesion activity (TLA) of the heterotopic ossification lesions of at least 5%, at least 10%, at least 15%, at least 20%, at least 25%, at least 30%, at least 40%, at least 50%, at least 60%, at least 70%, at least 80%, at least 5%-80%, at least 10%-80%, at least 20%-80%, at least 30%-80%, at least 40%-80%, at least 50%-80%, at least 60%-80%, at least 70%-80%, at least 5%-70%, at least 5%-60%, at least 5%-50%, at least 5%-40%, at least 5%-30%, at least 5%-20%, or at least 5%-10%, relative to a control.

9. The method of claim **1**, wherein the human subject exhibits a decrease in daily average pain-NRS of about 0.2-fold, 0.5-fold, 1-fold, 1.5-fold, 2-fold, 3-fold, 0.2 to 3-fold, 0.5 to 3-fold, 1 to 3-fold, 1.5 to 3-fold, 2 to 3-fold, 2.5 to 3-fold, 0.2 to 2.5-fold, 0.2 to 2-fold, 0.2 to 1.5-fold, 0.2 to 1-fold, or 0.2 to 0.5-fold, relative to a control.

10. The method of claim **4**, wherein the control is an average measurement or value gathered from a population of human subjects having FOP who have not been administered the Activin A antagonist.

11. The method of claim **1**, wherein the therapeutically effective amount of an Activin A antagonist reduces the occurrence of painful flare-ups in the human subject, relative to a control.

12. The method of claim **1**, wherein the new heterotopic ossification lesions are analyzed by a Positron emission tomography (PET) scan, a computed tomography (CT) scan, or a combination thereof.